


Parasitic

(6) داء طفيلي (6)

A. Worms (Helminths)

• Cut. larva migrans

•  داء الخيطيات

• Onchocerciasis

• Filariasis

• Schistosomiasis & Swimmer's Itch

• Cysticercosis & Echinococcosis

Protozoa

(1264)

• Leishmania

• Amebiasis

• Trypanosomiasis

• Toxoplasmosis

B. Infestations : (1291)

• Scabies

• Pediculosis

• Tungiasis

• Myiasis

C. Bites & Stings : 1303

• Bed Bugs

• Blister Beetles

• Insecta

• Tick Bite

• Dog & Cat Bites

• Marine inj.

• Leeches

• Scorpion & Snake

Mites

②

2. S.C MYcoses (1149)

1. Chromo Blastomycosis
2. MY Cetoma
3. Sporotrichosis
4. basidiobolomycosis
5. Lobomycosis

③ Systemic MYcoses

True Pathogen,

- Histoplasmosis
- Blastomycosis
- Coccidioidomycosis
- Paracoccidioidomycosis

Opportunistic Pathogen

- Systemic Candidiasis
- Aspergillosis
- Cryptococcosis
- Zygomycosis
- Phaeoconidomycosis
- Histoplasmosis

Parasitic Skin diseases

(3)

- Scabies
- pediculosis
- Leishmaniasis
- Creeping Eruptions
- Demodicosis

Scabies (7 year itch)

Contagious parasitic skin dis. caused by Fertilized Female Sarcoptes Scabiei var hominis (mite or Acarus)

Greek word

- Sarx = Flesh
- Koptein = scratch or cut

Latin word

Scabere = Scratch

Pathophysiology

منفرد

Mites

مفرد

♂ 0.2 mm
0.15 mm

Hemispherical

♀ 0.4 mm
0.3 mm

have < 4 pairs of Legs + ant 2 ends & Sucker

Life Cycle: 30 days (شهر) (4-6)

Deposit: 2-3 eggs/day

eggs → hatch → Larva & nymph stage
7 ds → adult → Reaction (itching; DR)

Can live upto 3 ds away from human host

Fin crushed (sc.)

(so Femites, beddings & clothings are alternate but infrequent source of infection).

Feed on dissolved tissue (by secreting proteases that dissolve st. corneum; don't feed on Blood)

Create a burrow. (1st lesion)

منفرد

No. of mites on patient body

Classic scabies: 10-12 (2/3 wrists & hands)

Norwegian: > 1 million.

hypersensitivity Reaction (Type IV) develop

Against

mite egg feces

(Feces)

Scybala

تتغذى على
الجلد الميت
وتمتص حشوات
الجلد الميت
وتمتص حشوات
الجلد الميت
Burrw. → nymph → Adult → Burrw.

Night Warmth

++ movement

Night itching

X The Allergic sensitivity (is) both:

• CMI

↓
manifested by acute
eczematoid Reaction

• Humoral

Igm E/C3
in U. crail &
± DEJ.

Mode of Transmission

Direct (+)

↓
direct & prolonged
Contact & the
patient or ingested
animals
" طويل - مباشر - طويل - غير مباشر "

Indirect (+)

• Sharing Common Bed, Towels, clothes

less
tant
(last 11
= 11/11
host)

Clinically < CIP Clinically Variable

• IP: ??

③

Itching
lesion
distribution.

• Itching: intense that is worse at night (wint. the caus)

Lesion: (Iry lesion): [1] Burrows: Pathognomonic
Sign of scabies (Iry lesion).

• Serpiginous, grayish, "thread like" elevations

at the end of cu < Vesicles or
Papule or
black dot (mite)

• site: → adult: wrist, hand, Elbow, axilla, < 0
→ infant: Palms & Soles, Trunk, < 0

[2] • papules & vesicles at < adult: penis & areola.
children: Face & Neck.

→ [3] Wide spread Eczematoid erythema: → young child
infants.

[4] Nodular lesion (nodular scabies) → pink-brown
(2-10 mm)

[5] Crusted scabies

IP
• 1ry infect
2-6 d
• Recurrent
infect.
1-2 d

1ry

2ry

Other

- Burrow
- papules
- vesicles
- nodules
- wide spread
eczema
- Crusted scabies

2nd lesions: dit \leftarrow 2nd inf. & low
 Host immune response
 against the mites &
 their products.

as $\left\{ \begin{array}{l} \cdot \text{Crustation} \\ \cdot \text{Post inflamm.} \\ \cdot \text{Hyperpigment.} \\ \cdot \text{erythroderma} \\ \cdot \text{Nodular prurigo} \\ \cdot \text{Pyoderma} \end{array} \right.$

distribution of lesions

"apt" \rightarrow "warm, soft, moist areas"

U.L $\left\{ \begin{array}{l} \text{Finger creases} \\ \text{Flexures (ant.) of wrist} \\ \text{ulnar border of hand \& Forearm} \\ \text{Elbow, axillae, around nipple (f)} \end{array} \right.$

L.L $\left\{ \begin{array}{l} \text{inner aspect of thighs \& legs} \\ \text{around ankle} \\ \text{dorsum of feet} \end{array} \right.$

Abd. $\left\{ \begin{array}{l} \text{Lower abd.} \\ \text{Genitalia} \\ \text{lower buttocks} \end{array} \right.$

N.B $\left\{ \begin{array}{l} \text{Face: not affected (except Necrotic \& old age).} \end{array} \right.$

Interscapular \rightarrow usually spared

Very characteristic areas: \rightarrow $\begin{array}{l} \text{♂: papules \& vesicles (on) scrotum \&} \\ \text{♀: around the Anus. perineum} \end{array}$



Circle of Hebra: imaginary circle intersecting the
 main sites of involvement:

- axillae
- elbow (Flexures)
- wrists
- Hands
- Crotch (perineum)

Clinical Varieties

1. Human (classical type)
2. animal type
3. Nodular sc.
4. Crusted sc.
5. Venereal sc.
6. Incognito

7. scabiosa

- infants \& children
- bed ridden
- Clean.

sarcoptes
Manage

Animal scabies

Biting not infested
(~~infestation~~ by Animal mite) (6)

- Short IP
- More Extensive
- Self limiting
- Not Transmitted bet. humans.

- different distribution \rightarrow \pm localized \rightarrow acc. to mode of ex.
- \pm Generalized
- No Burrows
- \rightarrow topical anti pruritic & antihistaminic.
- webs & Genitalia \rightarrow Free

diff. in

Nodular Scabies

(Post scabietic nodules)

- Nodules \leftarrow erythematous, pink-brown
- Indurated
- mainly at \leftarrow $\begin{cases} \sigma : scrotum \& penis \\ \text{♀} : areola \end{cases}$
- other \leftarrow all over body

- Represent hypersensitivity Reaction to dead mites $\&$ its toxins.
- May persist for mths after TH \rightarrow Persistent itching \rightarrow $\begin{cases} \text{So TH} \\ \left[\begin{array}{l} \text{Cs} \leftarrow \text{topical ILs} \\ \text{Tar} \\ \text{Surgical excision} \end{array} \right. \end{cases}$

Crusted scabies

(Norwegian scabies)

- Special type of scabies caused by severe infestation (>1 million mite) d.t inability to \leftarrow mount an immune response
- perceive pruritus
- physically scratch the skin

"Mechanism rid the body of mites"

- \leftarrow defect $\begin{cases} \text{MR} \\ \text{DM} \\ \text{leukemia} \\ \text{Immune compromised} \\ \text{neurologic disorders eg Leprosy} \end{cases}$
- Patient CS

- clinically: \rightarrow Skin: Severe crusting, infested & hyperkeratosis
- scalp & face affected
- Erythroderma, L-N, Eosinophilia
- Itching

hand & arms \leftarrow affected
L & dist area can be affected.

Venerical scabies: STD.

- Scabies in bed ridden → localized to areas of contact w/ bed.
- Scabies in infants & children:

- Low index of suspicion.
- Frequent lack of burrow.
- Frequent eczematous lesions
 - vesicle
 - Bullae
 - 2ry bact. inf.
 - Nodules

Atypical distribution Face, scalp, neck, palms & soles.

- Scabies in clean → lack of burrow.
- Scabies Incognito: scabies that has a modified course & extension by use of Cs.

↓
immediate Relieve → then Flare & Atypical picture.
of S. & S.

"post scabietic pustulosis"

Variant of API but affect the Torso > API
Acral pustules, Recurrent, itchy lasting 5-10 d.
Then recur 12-4 wks
H \leftarrow antihist
Cs

How to diagnose a case of Scabies

(Diagnostic features)

- Marked Itching that ↑ at night (esp. in bed)
 - +ve FH
 - classic sites, distribution & morphology.
 - Response to specific H (therapeutic X):
- investigations:

NB:
Use 10% KOH to remove crust in crusted scabies.

KOH: dissolve the scybala so mite is exposed.

1. Scraping: scrap the dry lesion \leftarrow papule, vesicle, burrow (crust).
Slide & 10% KOH or mineral oil → mites, feces (scybala) or eggs.
(multiple scrap may be needed)

2. Burrow ink test (or Gentian Violet).

3. Wood's Light: tetracycline sol. put on burrow → (crash the mite) → "Green Fluorescence"

Fig 4.

Histopathology.

Pig

(8)

• usual scabies: (early lesion)

- See larvae, ova, mites, feces in str. corneum
- suppurative & deep dermal infl.
- (Histocytes, Lymphocytes, Eosinophils)
- Spongiosis
- exocytosis

• Crusted scabies:

- Hyperkeratosis
- psoriasiform epid. Hyperplasia
- Spongiosis
- Superficial & deep chr. inflamm. infl.

- (a) Post scabietic nodes: → Pseudo lymphoma

Fig 5

NB

(1) Consider scabies in any patient presenting w/ recent onset of itching that ↑ at night

(2) scabies exit bureau:

- Late infection (Excoriated)
- animal scabies
- Scabies in clean
- Infertile scabies.

(3) Scabies exit Itching:

- within IP
- Crusted scabies
- Incognito

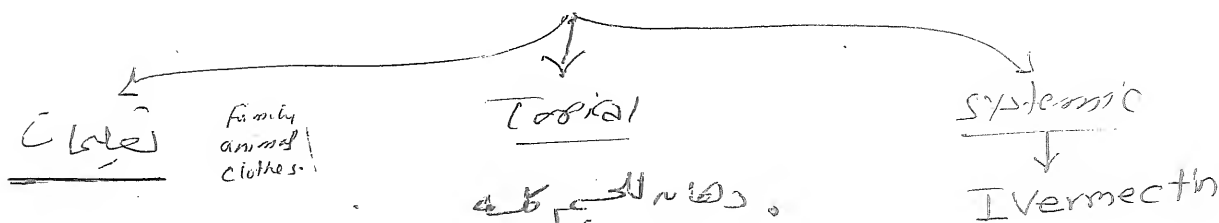
(4) Scabies that ~~are~~ don't need H
animal scabies

Fig 6 (5) D.D Infantile & childhood scabies.

Fig 7

Acropustulosis of infancy

Treatment → Scabies



١- علاج الحشرات المنزلية

٢- كل أفراد العائلة (حتى لو لم يصابوا)

٣- تغيير الملابس

٤- تغيير الفراش

٥- تغيير الملابس الداخلية

٦- تغيير الملابس الخارجية

٧- تغيير الملابس الداخلية

٨- تغيير الملابس الخارجية

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١٠- تغيير الملابس الخارجية

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٢٨- تغيير الملابس الخارجية

دهان الحميم كله

على الوجه والرقبة

(تحت إشراف طبيب)

لينة ورياح وحبس

نفسه

تغيير الملابس

الداخلية والخارجية

السري

Topical HT

لا يتم تكراره بعد أسبوع

overnight (2hrs)

(2 applications, 1w apart)

- Sulfur ppt (5%)
- Benzyl Benzoate (25-33%)
- Gamma benzene hexachloride
- Crotamiton (10%) (Scabine)
- Malathion (0.5%)
- Ivermectin (1%)

All are Category (C) in Preg.

Except Ectomethrine & Prioderm

Category (B).

نوع من Ectomethrine

Drug

Risk

Risk factor

Efficacy

Permethrin 5%

Scabine

- Over night
- Repeat after 1w

• Allergy to formaldehyde

- CVS dis.
- Age < 2y
- Pregnant & lactating
- ended skin

• Good but some cases developed Tolerance.

- low efficacy
- Common Resistance
- SE

Sulfur

Crotamiton

Ivermectin

3 successive days

- 3 successive days
- Repeat after 1w

• Ectomethrine & Scabine

• Non irritant CD & denuded skin

• See systemic

• Not evaluated

• Very poor, used for post scabetic pruritus good

Systemic II (Ivermectin)

(10)

- dose : 200 - 400 µg/kg Repeated after 1-2 wks.
- Tab : 6 mg (tab / 15-30 Kg). ↓
For 2-3 ds

- C.I :
 - pregnant (C)
 - Lactating
 - Age < 5 yrs or Wt < 15 Kg ?? (BBB still in adequat)
 - Hypersensitivity
 - CNS disorders (any condition ass e disturbed BBB)

Extremes of Age

• Mechanism : Blocking neurotransmission across

(X glutamated Chloride Ion Channels) ↓
Exp L

"-- GABA in insects"

nerve synapses that utilize glutamate or GABA →

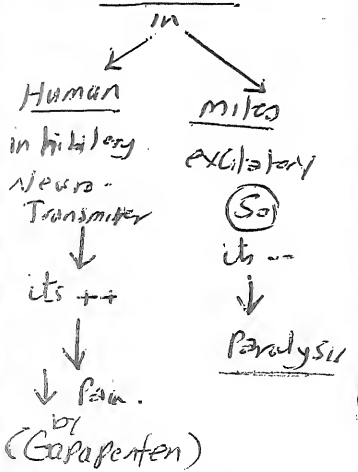
Paralysis of peripheral motor function of insects

• GABA & glutamate are inhibitory neurotransmitters in Human brain

So intact BBB Needed to avoid its toxicity → "Convulsion"

منه من
منه من

GABA



• Cuplen طالقة

1. ++ Synthesis of GABA (No effect on RS)
2. 2d Voltage gated Ca²⁺ Ion Channels → ↓ pain.
3. affect Cytochrome

(Other uses)

- oncho
- Filariasis
- Strongylos
- Cut. li
- Dem

of choice in Crusted Scabies & other Toxicity

"Mazzoni react"

• FDA < oncho, Crusted Strongyloidiasis

S.E rare:

- Tachycardia
- Nausea
- Flushing
- lightheadedness
- in onchocerciasis

→ Fever, rash, arthralgia & Eye irritation
Strongyloid. → diarrhoea & Rash

NB

Scabies - Therapy

(11)

- [. Ectomethrine
- [. Ivactin
- [. Malathion

Causes of persistent itching ~ 1st, 2nd, 3rd

1. Re-infection
2. Failure of Ht
3. CD from the Ht
4. Post-scabietic pruritus:

d.t. Hypersensitivity Reaction to the dead mites 2-4w Exfoliated
→ Cessation of itching).

⑥ Post-scabietic Nodules

⑤ delusion of parasitosis (Acarophobia)

• Why we give 2nd applicatⁿ after 1w??

1. Guard against Re-inestation from infected fomites
2. to Kill ant hatched Nymph that protected from the semi protective environment of eggs.

* What's Ht of Acarophobia??
(Pimozide)

* What is the pathology of Nodular Scabies??

15

- 10% Sulfur 5% — Form hydrogen Sulfide
Keratolytic
- 25% — Benzyl Benzoate: NS →
- benzene Hexach. (lindane 1%):
 - Crotemiten (10%): Mechanism ??
 - Permethrin (5%): — Na Transport in Neurons → Paralysis.
 - Malathion (0.5%): organophosphate, Toxic applied for 12h.
 - Ivermectin (1%)

-
- 3 Successive days — Sulfur
Benzoate
Crotemiten.
- 1 & 8 d. — Ectomethrin
Scabim.

• Dermoscope:

1. dark Triangle (Pigm. ant part of mite)
2. Burrow, eggs, feces.

Pediculosis (Lice Infestation)

• parasitic infestation by flattened, wingless, blood sucker insects

• 3 Types of Infestations caused by 3 species of Lice:

- Pediculus Humanus Capitis → Head louse
- " " Corporis → Body "
- Phthirus pubis → Pubic louse.

NB: Some authors consider only 2 species of Lice:

- ① Pediculus Humanus → 2 varieties { Capitis
Corporis
- ② Phthirus pubis

X Head lice = Pediculosis Capitis

• description & Life Cycle of the Lice:

Lice (Pediculus Capitis)

2-3 mm (Sesame size)

Wingless, white to gray

with 3 Pairs of clawed legs that ^{fit} texture & shape of Hair.

Suck Blood: 5 times/day

for 30 mins.

Life cycle: 30 ds.

Lay: 5-10 eggs/d. ^{7d} hatch
→ ^{2w} larva nymph → ^{1w} Adult

• 3 Pairs of clawed legs
• life cycle 30
• eggs 5

Nits (egg case or shell)

• the eggs are surrounded by oval Capsule or Shell - that's has chemical structure similar to that of Hair Shaft (so any Triol by chemicals to remove it → damage of shaft)

→ "Has a Cap: porous Operculum" Cap that allow for gas exchange while the nymph develop in the case.

2-7
 • Can't survive > 36 hrs
 away from The Host
 without blood meal

• Move 23 cm / min
 • Combing & Hair dryers
 can effect it \rightarrow
 ≈ 1 meter away
 from the scalp.

Hot Humid
 areas may
 be active at
 distance of
 15 cm from
 scalp.

Except

✓ So Nits
 ≥ 1 cm from
 scalp
 \downarrow
 usually
 inactive
 < 1 cm
 \downarrow
 usually
 active.

• Hatch after: 10 ds under
 favorable Temp. (30°C) &
 Humidity (70%).

NB - Head lice harbor many organisms within
 Their Gut & they are unproven yet likely, vectors
 of various Human pathogens.

(eg). They can transmit: Staph & Strep by
 carrying the organisms on their external surfaces.
 • eggs $\xrightarrow{10\text{ds}}$ Hatch $\xrightarrow{10\text{ds}}$ mature louse.
 • Net Color $\begin{cases} \bar{e} \rightarrow \text{Viable eggs} \rightarrow \text{brown} \\ \bar{e} \rightarrow \text{hatched} \rightarrow \text{white.} \end{cases}$

Mode of Transmission

• Direct \rightarrow Head to Head Contact
 • Indirect: \rightarrow Via brushes, Fomites, beddings,
 blow dryers, Combs.

Africans are never affected
 due to the physical structure of
 their hair.

• IP (Period from infestation till development
 of symptoms as itching):

1st/Scabies
 • First infest. $\rightarrow 2-6$ w.
 • Recurrent $\rightarrow 1-2$ d.

(development of immunological
 response to irritant components
 to lice Saliva / Excreta)

• Age: 4-11 yrs

• Sex: $\text{♀} > \text{♂}$

CIP

• Irritation, itching, Eczematization & 2ry bact. Inf. (Impetigo).

• S & S: more common specially at post. Hair line & post-auricular.

• Inspect for $\left\{ \begin{array}{l} \text{Adult louse} \\ \text{Nits} \end{array} \right.$

Comment on the

distance from Scalp surface.

(\geq or $<$ 1 cm).

Color (brown or white)

• Low grade fever, irritability & L-N

(NB): Pediculosis is the most common cause of Scalp Pyoderma.

DD:

Scalp Pruritus e.g. S.D & P.S.

Cause of Nodes at Hair shaft

(See Hair): e.g. Pseudonits

Scales of SD:

فقدان

Falling Scales

SD

No falling ✓

pedicularis (Nits).

• 3-5 mm

• 3-5 cm from scalp

• sleeve like →

Sliding over Hair

• M.L: yellow-green bluish.

Ⓓ remain.

Treatment

1. Chemical methods → Pesticides

2. physical methods → Nit removal & lice immobilization.

3. Antibiotics → Septrin (& Albendazole.)

4. Other lines → Systemic antib. & disinfectant of linens.

(17)

Head lice are the most common cause of the pyoderma of the scalp.

1 Pesticides

توضيح لينة ١. دقاته ثم تغطى وكمه و قفل
توضيح طة ٨ - ١٢ ساعة (overnight) بعد (النداء) قواعد
لازم بقاء و استخدام بعد فترة سبوع (another application)
Lotions افضل من Shampoos.
الافضل ٣ منتجات ١ ٢ ٣

- Organophosphorus (-- cholinesterase) → ① Malathion 0.5% : (افضل و صريح)
• Kill lice & eggs
• stick to Hair → protect against reinf. atk. the Next 6 ws.
• Excellent results.
- ~ antiparasitic ~ → ② Ivermectin : 1% (Topical)
"Synthetic Pyrethroid" → ③ Permethrin 5% C.
- ~ Natural extract ~ → ④ Pyrethrin : Piperonyl butoxide may be added to it to slow its Bio.transformation by -- CYP450 of the insect → ↑ efficacy.
- Chlorinated Hydrocarbons (DDT) → ⑤ Lindane (Scabine)
• not preferred why??
• applied for 4 mins.
- ⑥ Systemic Ivermectin: as in scabies.

2 Physical Agents (Nit Removal):

يدخلون في الشعر و يتركون ١/٢ ساعة
١. زيت الزيتون
٢. Vegetable oil
٣. Vaseline
٤. Mayonnaise
→ 2 effects < Suffocation (±) help to ↓ lice movem. → easy combing

دissolve the Cement Subst. & Nit
• Vinegar + water (1:1)
يدخلون في الشعر و يتركون ١/٢ ساعة ثم يغسلون

[3] Antibiotics: as (TMP+SMX) e., ¹⁸Septin

- -- growth of essential bacteria in Gut of Lice → disturb its life cycle.
- Potential: efficacy of Topicals

NB . up to till now no product is effective in nit removal

- Septin: is not curative alone.
- Resistance is common with all preparations
Except: malathion & Ivermectin.

(دیکھو) → "See below"

[4] other H:

- Systemic Antibiotics for dry bact. inf.
- Linens, Pillows & towels should be Laundered or dry Cleaned. or Boiling & Ironing

Body lice (pediculosis corporis) (Vagabond's dis.)

- Predisposing factors:
 - Over crowding
 - Bad Hygiene.
 - Poverty
 - Wars

• Pathogenesis:

- Body lice don't live or Lay eggs on the body but on the Clothes.
- the lice live on clothes & moves at night to suck! Blood.

→ "Seams of Clothes"

نقل: Many diseases can be Transmitted by body lice:

- Transmission by louse Faeces crushed → enter at site of bite or Break
 - Inhalation
 - Epidemic typhus (*Rickettsia prowazekii*)
 - Relapsing Fever (*Borrelia recurrentis*)
 - Trench Fever
 - Bacillary angiomatosis
 - Endocarditis
- "Bartonella quintana"

• CIP: ① Severe pruritus at back, neck, shoulder, waist.

نقطة الجسم ② Small Pin point macules, papules, Excoriation, Impetigo & L.N

نقل ③ Clothes & beddings: Pus, Blood & Fecal Pellets.
→ Adult lice & Nits: found

at clothing Seams that are at Contact = Neckline, Axillae & Belt line.

Body lice do not live or lay eggs on people but in their clothing.

"نقل الجسم" [نقل الجسم]
(11)

Pediculosis Pubis (Phthirus pubis) (23)

* Treatment: Mainly directed to Clothes & Bedding (21)
jeby . discarded in tightly sealed plastic bags & Incinerated

↓ if not possible.

- Hot washing & Tumble-Drying
- Dry cleaning

Patient ↓
as antiscabetic
Clothes ↑
or job

NB - Vagabond's dis: Heavy pediculosis corporis
ass. with:

1. SKin { Thickened
Eczematized
Pigmented (Addiscolor) }
like
2. L.N.

8 Pediculosis Pubis (Phthirus pubis) (23)
Crab Lice

- Crab lice: is more accurate as infestation of other hairy areas may occur e.g. axillae, eyebrow & Lashes.

- Epidemiology

- Age: 25-40 Ys (age of Sexual Activity)
- Sex: ♂ > ♀ (dit Coarse Pubic Hair).
- Transmission:

1. STD: by direct contact
2. Indirect: by garments & Towels.

- Pathogenesis:

- Lice differ from that of body & Head in:
 - More shorter & wider
 - They have serrated edges on their first claw that enable them to ambulate on entire body surface → so infestation occurs not only in pubic hair but also on:

- ~ سر ~
- Scalp (margin)
 - Eyelashes
 - eye brows
 - Moustach, beard, axillae & perianal.



- Indeed, 60% of Patients with Pubic lice are infested in two different hair-bearing sites.

(when pubic area is shaved or treated, any surviving crab lice can travel to other hairy areas including the scalp)

Eyelash nits are a sign of pubic lice!! (Fig. 24)



C/P

1. pruritus of pubic area

2. Lice can be seen by skilled eye, clinging to the base of hairs & may be skin colored or Hgic crust like.

Etiology:
Altered
Blood
Pigment.

3. Macula Cerulea: (sky blue) : asymptomatic, (slat-gray) spots to bluish, irregularly shaped macules affecting thighs & trunk & ass. e More chr. infestations.

4. Look for other STDs.

5. Eye lash lice: feces accumulate at lower eyelids as flacks of Mascara!

Treatment وضع طبخة ١. دواء روتيني - ن - ن (Scabine...) لع (over night applicatⁿ)

Treat all hairy areas e pesticides
Except Eyelashes

• Best H $\left\{ \begin{array}{l} \text{Topical: Permethrin 5\%} \\ \text{Systemic: I Vactin} \end{array} \right.$

(2nd application. .) عياد العلاج بعد اربع ايام

NB . Eyelashes pediculosis H:

① Petrolatum (Vaseline) → دهن

② I Vactin. (Systemic).

③ Mechanical removal of Nits.

④ 1% yellow oxide of Mercury

• Crab louse (pediculosis Pubis): → Consider

other STD

other infected sites.

So
Treat all hairy areas.

Demodex (Demodicosis)

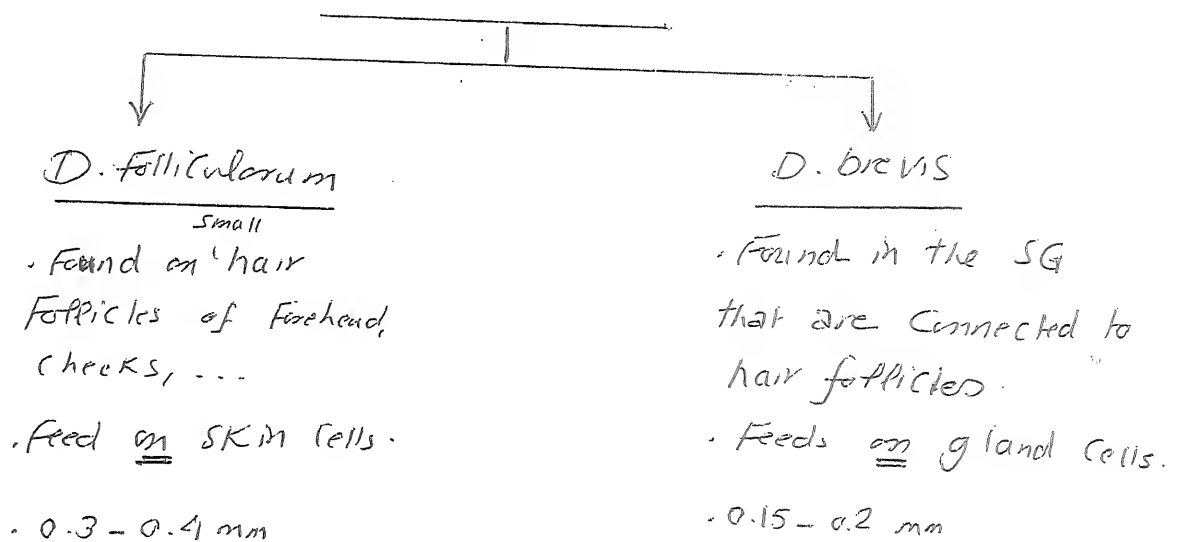
شعوى دمكسى (27)

def. Tiny "mites" That live on hair follicles (inhabit d.) & SG
Specially of: Forehead, Cheeks, Side of Nose, Eyelashes
& EAC.

Age: usually present in older children & Adults.

• Rare < 5 yrs.

Types: 2 Types of Demodex



دمكسى - اناج
يتحكم بالليل (8-17 م/ل) (أو ل)
عشان הפרد يتخلص من
داخل follicles.

Skin diseases caused by Demodex (Demodicosis):

- Pityriasis Folliculorum: dry, scaly skin
- Demodex Folliculitis: as before
 - Rosacea (Papulopust. or granulom.)
 - Periorifacial dermatitis
 - Blepharitis
 - Alopecia
- Abscess.
- L.MDF
- others: ocular problems.

• Diagnosis Mic. exam of:

1. Mineral oil skin scrapings
2. skin Biopsy.

• Treatment:

1. General lines:

- Twice daily non Soap Cleanser
- avoid oil based Cleansers or greasy make up.
- Exfoliate periodically (to remove dead cells).

2. Specific lines:

- Crota^omiten (Eurax)
- Permethrin C. (~~EC~~ Permethrin)
- Metronidazole (Topical or systemic).
- Ivermectin (in severe cases ass. w. HIV).

Synonyms:

- OWCL: oriental sore, Delhi boil, Baghdad boil
- NWCL: chiclero's ulcer (Mexico), uta and espundia (Peru), ulcera de Bauru (Brazil), bush or forest yaws, pian boi (Guyanas)
- VL: kala-azar and Dumdum fever

Protozoal SKIN infect- caused by: & Transmitted by:

Protozoa of:
Genus: Leishmania
Family: Trypanosomatidae

Sand Flies
Genus:

Phlebotomus
(OWL)

Lutzomyia
(CNWL)

Pathogenesis

the organism spend the life cycle inside Both Sand fly & Human

* Called: Promastigotes (4-25 ds)

- Spindle shaped.
- Fine flagellum.
- proliferate Extra-cellular in their Gut

blockage of their esophagus

during feeding of the Fly → expell the contents of their oesophagus (containing the promastigotes) to

RES of the Human

Human cycle

* Called: Amastigotes

- Ovoid
- Absent or Retracted flagellu
- proliferate intra-cellular inside cells of RES; (Macrophages)

Rupture.

Spread of inf. To other Macrophages

Carried through the body

Tissues.

Factors ↑ Susc. ph. To inf.

- ↓ Th1
- ↓ IL2, IL12, TNFα, IFN-γ
- ↓ host of exposure & virulence of parasite.

Immunology of Leishm.

①. Role of Th₁

②. Role of IL₁₀:

• \downarrow IL₁₂, IFN- γ & -- Macrophage

• IgG binds to FC γ Rs on ~ \rightarrow \uparrow IL₁₀

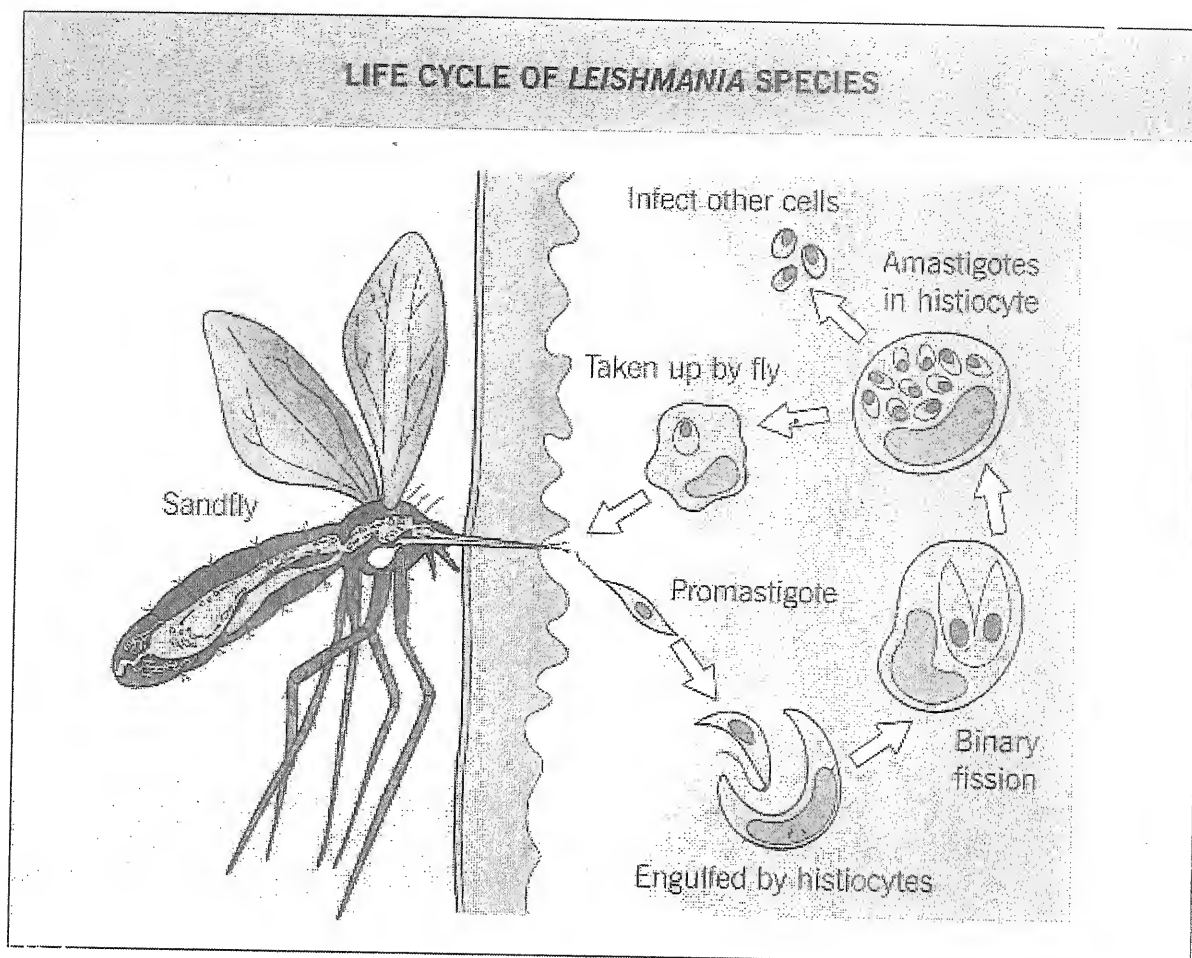
③ HIV + Leishmania:

• HIV \rightarrow \uparrow Leishmaniasis severity &
 \uparrow Visceralization incidence.

• Leishm \rightarrow \uparrow viral load & progression
of dis.

Reservoirs of inf: Human, Foxes, Dogs & Rodents.

(20)



Both susceptibility to infection and delayed resolution of leishmaniasis have been related in large part to an inadequate Th1 response^[4,5,6], the latter playing an important role in cell-mediated immunity (see Ch. 5). Production of interleukin-2 (IL-2) and interferon- γ (IFN- γ) is associated with a resolving infection, whereas worsening of the disease is associated with the lack of such a Th1 response or the development of a Th2-type response (i.e. production of IL-4 and IL-10)^[4]. Other factors that play a role in the parasite-human interaction include the amount of exposure to and the virulence of the parasite (e.g. macrophage-resistant strains of *Leishmania*).

IFN- γ is the most potent cytokine involved in the induction of cidal activity against the organisms residing within macrophage phagolysosomes. It leads to the production of oxygen species and activates naive CD4⁺ cells to become Th1 cells (see Ch. 5). The latter differentiation process is aided by IL-12, which stimulates natural killer (NK) cells to produce IFN- γ ^[4,6,7]. Tumor necrosis factor- α (TNF- α) is also important for the control of *Leishmania* infections^[5]. It is produced by activated macrophages and NK cells and it amplifies the macrophage activation triggered by IFN- γ . Of note, IL-2 plays a role in stimulating TNF- α production.

Animals which have recovered from *L. tropica* or *L. donovani* infections acquire immunity against reinfection from the same species of *Leishmania*, but not against other species. Similarly, humans with the New World form of cutaneous leishmaniasis have been inoculated successfully with *L. tropica* (and vice versa). Lastly, it has been reported that surviving an episode of visceral leishmaniasis confers lifelong immunity against all types of leishmaniasis.

(C)

Classification: Many Classification: Acc. To ^{دراسة} ^{مقدمة}

1. Taxonomy (الجنس)

2. Geographical:

(A) old world Leishmaniasis: (OWL)

توجد بأنواع الأسيان: الهند - آسيا - أفريقيا - الشرق الأوسط - البحر المتوسط

it Causes: Cut- or Visceral dis.

(B) New world leishm. (NWL):

موجودة: وسط وغرب أمريكا وأوروبا

it Causes: Cut., Mucocut or Visceral dis.

3. Clinical Classification

Clinical Classification

Cutaneous

(Oriental Sore)

"ع أنباع"

Mucocut (Espundia)

ulcer at Perioral or Perinasa | skin & mm → then Envelope the entire.

Nasal mucosa
Hard Palate
Soft Palate

NB: Mucocut:

Start as cut → 5y. Involvement of Mucosa.

Deformity & Disfigurement
Nasal Septum
Lips
Palate.

Visceral

(Kalazar = Black dis.)

Affect: liver, spleen, & L.N (RES)
Fever, anemia, w.t loss, Wasting.

HSM.
L.N.

Darkening of SKIN.

"3D"

Diarrhoea
Death (from Age, anemia or Septicemia)

SKIN lesions:

Specific: Papules, Nodules, ulcers, Angular Ery.

non Specific: purpura, Plgm., Xerosis

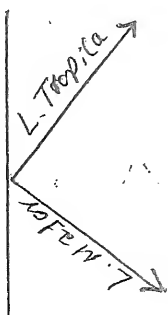
Post. Kalazar dermal L.

"Domevanosis"

Localized CL

- Start as painless papule → nodule or plaque → ulcer + rolled border & surrounding inflamed skin

The ulcer may be:



Moist (open, seropurulent exudate)

Rural or Wet dis

Site: usually at exposed sites

Dry (crusted scab)

Urban or Dry dis.

Diffuse (Anergic) CL

- L.L like lesions (Multiple wide spread non ulcerating nodules & plaques)
- No systemic effect
- ve Leishmann test (Anergic). Why? (L.L = L. leprosy)

Recidivans CL

- uncommon
- recurrence of lesions at the sites of "apparently" healed disease months after inf.
- lesion: enlarging papule, plaque or Coalescence of Multiple papules that heals with Central scarring.

Peripheral Expansion may

"LV" like Facial disfigurement

Post-Kala Zair dermal leishmaniasis

- Endemic in Sudan
- Visceral L. m. minor
- CIP → variable
- Hypopigment. - Erythematous macules papules or nodules.
- verrucous plaques
- Malar Erythema

Localized CL may show sporadic pattern.

- F. Fate of localized Cut
- ① Spont. Resolution & Scarring (3-6 mo) : most cases (90%)
 - ② Chronicity. (> 24 mo)
 - ③ Dissemination.

Causes (نوع المرض و مكان الإصابة)

① Cut. Leishmaniasis:

OW → L ← Aethiopia
Tropica
Major Jey

Americas → NW → L. Braziliensis
L. amazonensis
L. Mexicana

② Muco Cut:

NW → L. Braziliensis

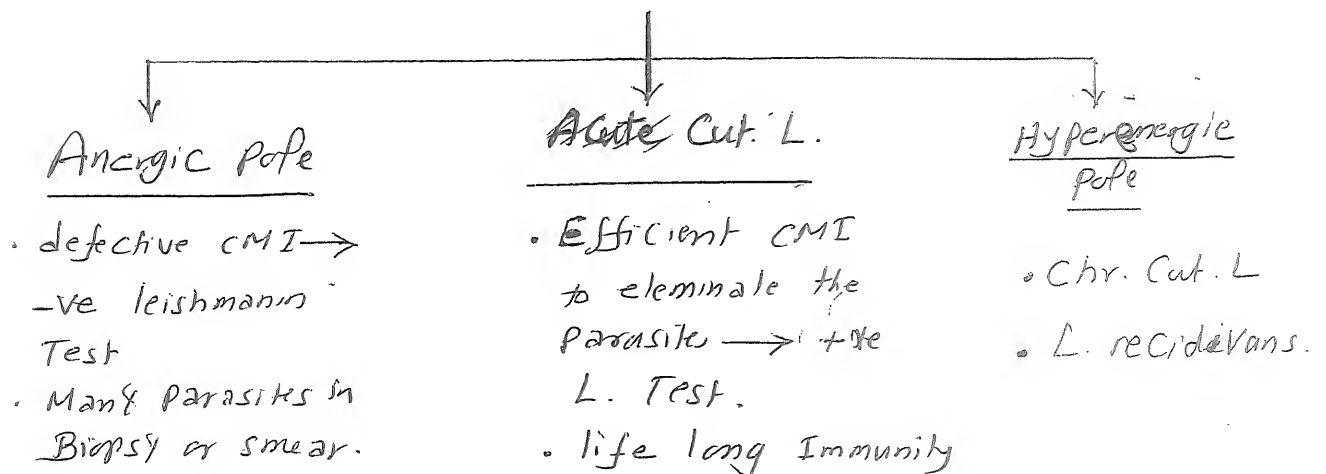
OW → No species can cause Muco Cut.

③ Visceral:

OW → L. Donovanii & infantum.

NW → L. chagasi

Leishmania Spectrum:



Investigations

RR 10/10

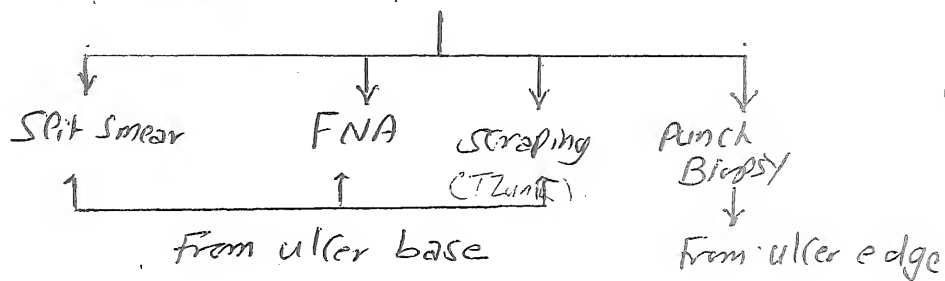
(34)

1. History of Endemic area:

لبنان - سوريا - أفغانستان
إيران - باكستان - الهند

2. Chronic Painless lesion.

3. Giemsa / Wright or Feulgen Stained



الحية لا
Smear or Tissue
(direct touch preparation or Biopsy).

NB
Amastigotes
called: leishmania or Donovanian or L-O Bodies.

هاتون

Amastigotes in dermal

Macrophages (75-85%)

[Oval & no Flagellae or retracted Flag.]

تسمى الجراثيم

- Cytoplasm → Blue
- Nucleus → pink
- Kinetoplast → deep red.

(these Amastigotes called Donovanian bodies)

Called paranucleus
ACCENT NUC. or
small mass of
chromatin
Near! NUC.

4. Culture: (For diagnosis & species specification)

on: Nicolle-Novy-MacNeal (NNM) media
or
Check embryo (Schnider Drosophila).

5. Serology:

- PCR (FDA approved. - يفسر)
- ELISA, Immunoppt., IF. → (Not specific d.t cross react & Chagas dis.)

6. Leishmanin (Montenegro) skin test:

2

Leishmann Test

(35)

oil mf suspension of
Cultured Promastigotes intradermally
injected

↓ 2-3ds

Indurated papule ≥ 5 mm.

Interpretation:

1. Result
 - Strong +ve \rightarrow Chr. Cut. (> 24 ms)
 - +ve \rightarrow Acute Cut.
 - -ve \rightarrow Diffuse Cut.
2. usage in pts Living in rim endemic area.
3. don't differentiate bet. Recent & old inf.
4. +ve in 4-6 w. after inf. & in all
Having or had Having inf. Except??

7. Histopathology:

A. localized Cut.

Early lesion. (< 6 ms)

- Acanthosis
- ulceration
- Pseudoepitheliomatous Hyperplasia
- Mixed infiltrate.

+ve Amastigotes inside
Macrophages.

Old lesions. (chr. > 6 ms)

- \uparrow No of giant cells &
- \downarrow No of Amastigotes.
- Caseat \rightarrow Necrosis

Scarring lesion.

- Epid. \leftarrow Flattening & Hypopigment.
- dermal fibrosis.

B. Diffuse Cut.

توزيع واسع...
Amastigotes + few inflamm. cells.

C. Post kala-azar dermal L.

Histiocytic or Xanthomatous
infiltr. + \uparrow No of Amastigotes.

D. L. Recidivans

" " like + (No) organisms.

Treatment (its self limiting So Ht ± not needed except to # scars dissemination)

Prophylactic

- insecticides
- Insect repellants
- destruction of animal
reservoirs.

• Vaccine: Killed *L. amazonensis*
promastigote vaccine →
++ Th1 → significant
resistance

S.E of Antimonials

- Cardiotoxicity (RPT)
- Nephrotoxicity
- Lipidosis
- Pancreatitis

Active

أهم الأدوية
: هو

Pentavalent Antimonials

- Meglumine anti-
moniate
- Sodium Stibogluconate (SG)

20 mg/kg/d IM

For < 20 d for CL
30 d for MCL & VL

IV:

20 mg/kg/d
for ...

Intra-
lesional

Active III

Systemic

Parenteral

oral (P-251) [RAKID]

①. Pentavalent
antimonial

②. Amphotericin B

(1 mg/kg maximum
15 mg/kg in 5%
dextrose
= 150 mg / 300 ml)
يعطى بـ 150 مل

• R: Rifampicin

• A: Allopurinol (15 mg/kg/d
x 3 w)

• K: Ketoconazole

• I: Itraconazole (200 x 2 x 28)

• D: Dapsone

S.E: Renal Toxicity

Thrombophlebitis

③. Pentamidine: 4 mg/kg IM For (2 wks)

Local

1. أوليف: Paromomycin

Sulfate 15% +
Methylbenzethonium
(12%)

2. IL (SG): 1-3 ml
(100-300 mg)
يعطى بـ 1-3 مل
أو 100-300 مل

3. Cryo (5% for 20 sec
3 times / w.)

4. Elecho (or heat
therapy)

5. Surgical Excision

6. Imiquimod 5%

Creeping Eruptions

(Cut. Larva Migrants) (Sand Worms)

Def Parasitic skin Infestations caused by Hookworm
Larvae that usually Infest $\begin{cases} \text{Cat} \\ \text{Dog} \\ \text{other animals} \end{cases}$

Etiopathogenesis

- (1). Ankylostoma $\begin{cases} \text{Brazilian} \rightarrow \text{Cats} \\ \text{Caninum} \rightarrow \text{Dog Hookworm} \end{cases}$ (أمريكي)
(2). Uncinaria stenocephala \rightarrow " " (أوربي)

↓
Eggs passed in feces of these animals.
to the warm, "moist, sandy-soil" ← $\begin{matrix} \text{تراب} \\ \text{رطب} \end{matrix}$

↓
Hatch \rightarrow Larvae \rightarrow Penetrate Hair follicles,
cracked & fissured skin or even the
intact skin of:

- Bare footed:
• children
• Farmers
• Carpenters
• Electricians
• Beach Combers \uparrow RISKY

• Human Host

• Animal Host

penetrate str. Corneum
migrate \rightarrow Track formation
(die in 2-8 wks.)

penetrate to dermis \rightarrow Lymphatic
& Venous systems \rightarrow Lungs \rightarrow Alveoli
penetrate to Trachea \rightarrow Swallow
into intestine \rightarrow Mature sexually
Eggs \rightarrow life cycle.

(Dermis ?? Δ $\begin{matrix} \text{الجلد} \\ \text{الداخل} \end{matrix}$)

• Because doesn't have collagenase
Enzyme that can penetrate
the BMZ.

CIP $\begin{cases} \text{penetrate} \\ \text{Migrate} \\ \text{Track formation} \end{cases}$

- ① penetrate: of stratum Corneum 30 min \rightarrow itching/tingling, Numbness
Papule vesicular Eruption (late onset CLM described)

(2). Migrat

- Immediate after penetration or in w.s - ms.

(rare) →

• Systemic Manifests

- Peripheral Eosinophilia (Loeffler Synd)
- ↑ IgE
- Migratory palm.
- Infarctate.

• NB: EM ± Caused by it.

→ (3) Track (Formal)

- 2-3 mm width.
- 3-4 cm. from periphery site
- Snake-like, S-shaped, raised, flesh color or pink & IT
- (1-2 cm id) مقياس 1-2 سم
- Many tracks
- Many penetrations
- Sites مواقع
 - Webs of toes & knees & buttock.

• Investigate : • Biopsy From just ahead of leading edge of a track:

(Mainly clinical)

- Larvae. (PAS +ve) in suprabasal
- Spongiosis → vesicle.
- Necrotic KCs
- Eoid- & cytop dermal chr. inflamm

(Treatment)

(Self limiting dis. because Human is an accidental host. dead end → Larvae death).

↓ to shorten the course. للتقصير

① Topical Anthelmintic

Withabendazole (of choice)
Albendazole
Mebendazole

↓
for Early localized lesion.

② Systemic Ivermectin

→ (if) disseminated lesion
if topical failed.

اللي شبيهة
في شكل لوس
والتراكيب المتفرقة
في شكل اسود

(2) Migrat

- Immediate after penetration in ws - ms.

(3) Track Form:

- 2-3 mm width.
- 3-4 cm from penetration site

itchy site
Snake-like, slightly raised, flesh colored or pink & Itchy

(1-2 cm id) وبقيع يزحف بسا

- Many tracks ± d.t.
- Many penetrations

Sites: Webs of Toes & Fingers, Knees & Buttocks.

rare → Systemic Manifestations: ↑ IGE, Peripheral Eosinophilia (Loeffler's Snd), Migratory palm. Infiltrate.

NB: EM ± Caused by it.

Investigation: Biopsy From just ahead of leading edge of a track:
(Mainly Clinical)

- Larvae (PAS +ve) in suprabasal Burrows
- Spongiosis → Vesicle.
- Necrotic KCs
- Epid. & upper dermal chr. inflamm. inf.

(Treatment)

(Self limiting dis. because Human is an accidental host & dead end → Larvae death).

to shorten the course.

عزلة

Doc

Thiabendazole (of choice)

① Topical Anthelmintic: Albendazole, Mebendazole

For early localized lesion.

② Systemic Ivermectin → if disseminated lesion, or if topical failed.

البرص
في الجلد
والبثور
في الجلد
والبثور
في الجلد

Leishmaniasis

A. Cut

• few / uncomplicated lesions

- Observatⁿ
 - 1. parentomycin Topical
 - 2. Heat فني
 - 3. KIDAR بترخ قه
 - 4. IL Shibo Gluc. الشف
 - 5. IL Hypertonic Saline

15%
10% Urea

• Invasive lesions

- Multiple, large, disfiguring
- Show lymphatic spread
- at / Near ↳ face joint Mucosa → Invasive
- Resist Topical



• Muco Cut. & Visceral

- STG
- Miltefosine
- Liposomal Amphotericin

(1) Pentavalent Antimonial:

- STG • Meglumine Antim.

(2) Pentamidine

(3) Miltefosine

(4) Amphotericin

• STG

IV (الوريد)

IM ← IM → Very painful

IV has Main 3 S.E

(1) CV Complication

جل ما نضيق نغمر دم قلب و اتر عيان
كيفية بطيئة و باره و انكسار شمع مشابه لقلب و
كثرة حدوث كلة او Chest pain وقت

(2) Pancreatitis

Follow up c ← Amylase

لو استوا ادم ادر Amylase اضمحان لنقل و توقف علاج
فترة ك ما شخو ادم قبل عن الاضف علاج

(3) Phlebotoxic

اد و يبق صعب كفة تاني و
قلعة طرفية و تكتوب ريب و Thrombus

• Miltefosine (2014) ↳ Visceral Cut

Mechanism: Antineoplastic agent acts as Phosphocholine analogue \rightarrow \neq memb. Synthesis & Signal production

• STG IL (Pentostam[®]: 100mg)

• Meglumine (Glucanline[®]: 85g)

كيفية 2 في lesion بطرقه صيرة (الاي و يث Blande
كيفية (1-5 مل: 1-3-5 مل) قف او ركة
كل يوم لة 1-4 مل

SE: ~~nausea~~, ~~vomiting~~, ~~teratogenic~~

• FDA (2003), Thermomod device that heats the skin by Radiofreq. waves
(30-50°C) لة 3-5 لة (الاي و يث) كفة طة

one or more ~~concentrations~~ Applicators

Pentamidine (IM قف)

SE: Persistent DM recurrence

Dose: 2-4 mg / Kg alternate day
for 15 doses

efficacy: W Recent

• IL Hypertonic saline 10% & 15%

CV Complicatⁿ of
STG

ECG عزيمه و شمس

if

↓ Stokes-Adams

Synd.: Bradycardia or
Hypotension

↓

Atropine or
Norepinephrine

تبرص و ع. و شمس

(1).

ECG & CV enz.

(2)

lipase & Amylase

(3)

liver & Renal

(4)

CBC

Onchocerciasis

(River Blindness)

• Oculocut dis, caused by

Worm: Onchocerca
volvulus

Transmitted by Black Fly
of genus "Simulium"

ينتقل بواسطة ذبابة سوداء
Inter-tropical & Sub-tropical
Zones

90% in Africa

العين - نابص : 10%
أفريقيا الاستوائية

Transmission

الدورة الحياتية تتغير في Lumps في طفولتهم
تضع صلات (Micro-filaria) في الجلد
الـ SKIN & EXE
Very Toxic

من ملامح مرض الطفولة
في ملامح مرض الجلد
Blind. ← ملامح

تتأثر من مرض الطفولة

2wks → mature larvae →

Transmission of infect
to other pts.

CIP

① ASkin dis : 6 Types & ≥ 2 Types may be present
in 1 pt. The pattern may evolve &
change over Time.

① Onchodermatitis:

Vesicular rash.

- (i) Acute papular: wide spread, Eczematous Papulo pust.
- (ii) Chr. papular: severely itching papular rash & pigm.
- (iii) Lichenified: at L.L, lichenified + L.N

② onchocercal derpigm, Atrophy, Nodules

Leopard skin: depigm.
areas & perfolicular
Islands of pigm. Bilat
at Tibia.

Atrophic
skin at
buttocks &
lower back

↳ S.C nodules
Contain Adult Worms
at bony prominences
Contain: 2-4 worms
Length: may reach 80

(3) Other

• Lizard skin: Ichthyosis like.

• Hanging Grim: inelastic Atrophic (shrunken)
skin at grims ^{as} \bar{e} L-N

• (B) Ocular dis: ^{d.L} (death of Microfilaria)
- irritatⁿ, itching, photophobia
- glaucoma
- Blindness.

• Diagnosis

• Skin shavings of lesion. → show microfilaria

• Nodule excision → Warm under mic.

• Slit lamp exam → microfilaria

• Antionchocercus Antib.

(H)

①. Ivermectin: affect microfilaria only can stop progression of dis.

②. Recently: Doxy Targets essential bact. needed for fertility of Onch. worm (Symb. relationship: called Wolbachia.

③. Insect repellents

eggs
3

Life cycle

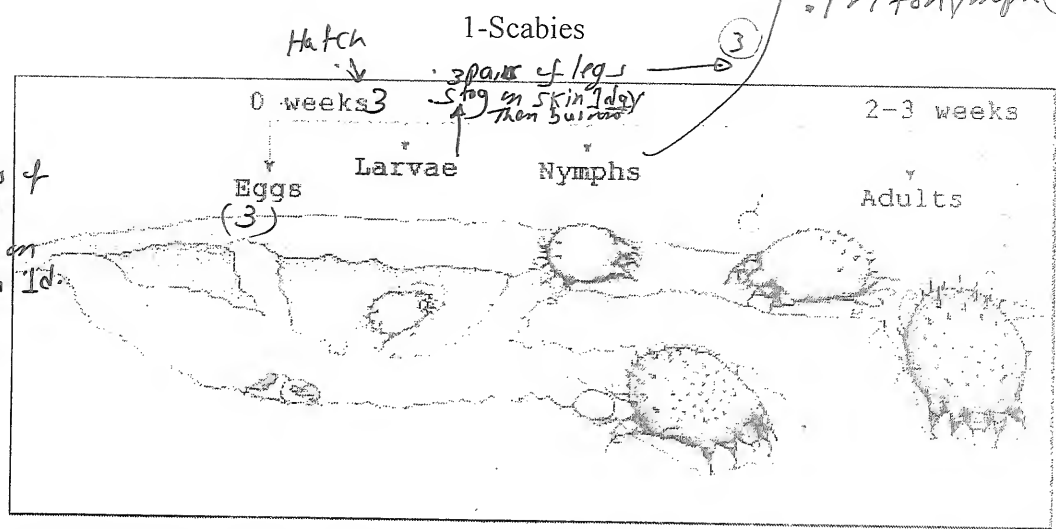


Fig. 3. The life cycle of *S. scabiei* comprises five lifestages: egg, larva, protonymph, tritonymph and adult. Illustration: Katarina Näslund

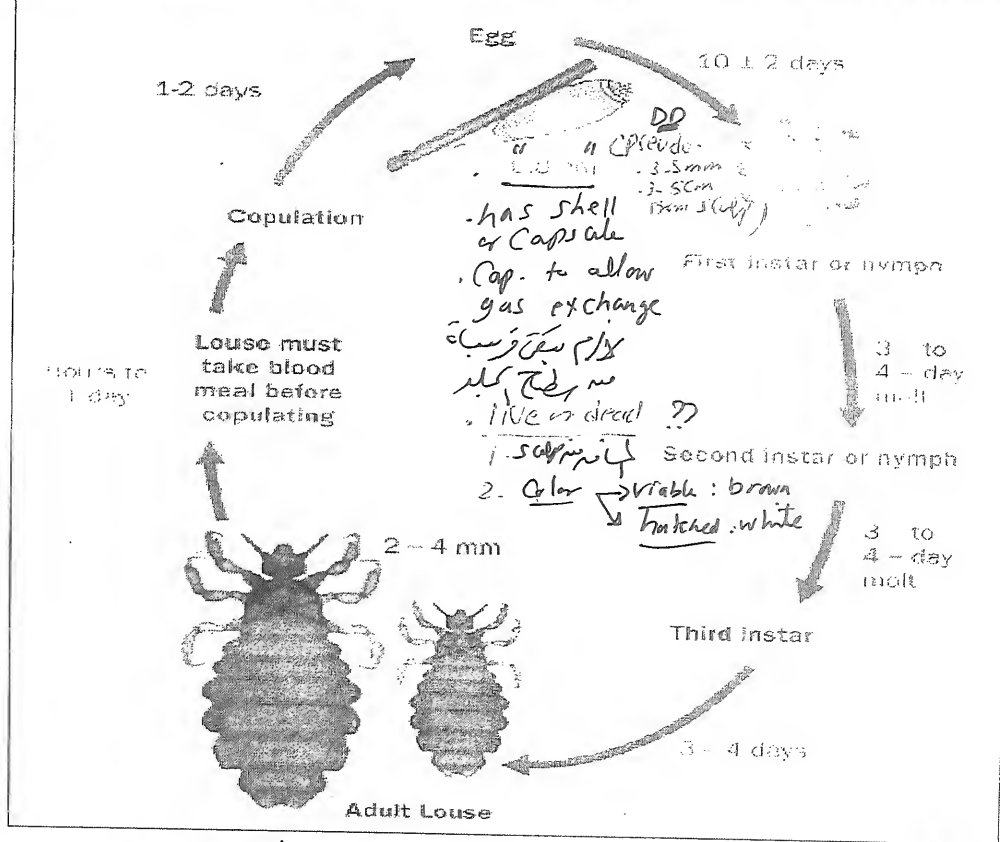
3d hatch
↓
larva { 3 pairs of legs
1 leg stag on skin 1d
↓ 3
protonymph
↓ 3
Nymph
↓ 3
Adult
↓
copulation
↓ 1-2d
Burrows & Lay eggs

2- Pediculus capitis

Adult:
3, 3, 3
10, 10, 10

life cycle: 30d
3 mm (Sesame size)
3 pairs of clawed legs
10 eggs
hatch after 10d
3 nymph stages (10d) (2w)

Life cycle of Pediculus Capitis (Head lice)



SUCK 5 times/d
each louse can move 23cm/min
cant survive > 2-7d away from host

Rule of thumb
Nits > 1-2cm from scalp surf.
→ Empty lice

Scabies: 3 eggs, 3d hatch → 1st nymph → 7d → Adult
Pedic: 10 eggs, 10d → 3 nymph → 2w → ~